Hazardous and Mixed Waste Requirements

Los Alamos National Laboratory
Laboratory Implementation Requirements LIR404-00-03.1
Effective Date: 12/16/96 (Revised February 26. 2001) **Mandatory Document**

1.0 Introduction and Purpose

1.01 Lessons Learned Note: *Click here* for Lessons Learned *that may apply* to the requirements contained in this LIR.

1.1 Overview

This LIR contains the Laboratory requirements that personnel generating hazardous and mixed waste must implement when characterizing and storing the waste. Hazardous and mixed wastes are regulated by the Resource Conservation and Recovery Act (RCRA), the New Mexico Hazardous Waste Act (NMHWA), and the New Mexico Administrative Code (20.4.1 NMAC), sometimes referred to collectively as "RCRA." Compliance with these federal and state requirements is mandatory for operations at the Laboratory that generate, store, and treat hazardous or mixed waste. Three other LIRs contain requirements specific to radioactive, solid, polychlorinated biphenyl (PCB) waste types.

This LIR complements LPR404-00-00.

See Appendix C (Guidance: Recommended Major Implementation Criteria for Self-Assessment).

1.2 In this Document

2.0 Acronyms

CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
ESH-5	Industrial Hygiene and Safety Group
ESH-19	Hazardous and Solid Waste Group
ES&H	environment, safety, and health
FWO-SWO	Facility & Waste Operations Division-Solid Waste Operations
HAZWOPER	hazardous waste operations and emergency response
IRF	Inspection Record Form
JCNNM	Johnson Controls Northern New Mexico
NMED	New Mexico Environment Department
MSDS	material safety data sheet
NMAC	New Mexico Administrative Code
NMHWA	New Mexico Hazardous Waste Act
OSHA	Occupational Safety and Health Administration

RCRA	Resource Conservation and Recovery Act (also used to collectively describe this act, the New Mexico Waste Act, and regulations promulgated thereunder)
SAA	satellite accumulation area
TSDF	treatment, storage, and disposal facility
UWA	universal waste area
WAP	Waste Analysis Plan
WMC	waste management coordinator
WMPCC	Waste Management Policy and Procedure Council
WPF	Waste Profile Form

3.0 Definitions

Acceptable knowledge: (AK) A waste stream characterization method that can be used to meet all or part of the waste analysis requirements for the waste media and may include documented process knowledge, supplemental waste analysis data, and/or facility records of analysis.

EPA hazardous waste number: As defined by regulations promulgated under the RCRA and New Mexico HWA, the number assigned by the Environmental Protection Agency (EPA) to each type of hazardous waste listed in 40 CFR Part 261, Subparts C and D.

Hazardous waste: Is a solid waste that is not excluded from regulation as a hazardous waste and is a listed hazardous waste or a waste that exhibits any of the hazardous characteristics (ignitability, corrosivity, reactivity, or toxicity).

Less-than 90 day (<90 day) accumulation area: {40 CFR §262.34} A designated space for accumulating hazardous or mixed waste in containers or tanks; the waste may not remain in the accumulation area longer than 90 days.

Mixed waste: Any waste containing both hazardous waste and source, special nuclear, or by-product materials subject to the Atomic Energy Act of 1954.

No-known-owner waste: Any material or waste with an unknown origin, history, generator, or process that does not have a defined owner.

Operator: The person responsible for the overall operation of a facility.

Recycled: A material that is used, reused, or reclaimed; i.e., material is reclaimed if it is processed to recover usable products or if it is regenerated. A material is used or

reused if it is either employed as an ingredient in an industrial process to make a product or employed in a particular function or application as an effective substitute for a commercial product.

Satellite Accumulation Area: {40 CFR §262.34} A designated space for accumulating hazardous and mixed waste where the volume of hazardous waste may not exceed 55 gal. or the volume of acutely hazardous waste may not exceed one quart.

Solid waste: As defined by regulation promulgated under the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act unless otherwise excluded. Any discarded material, either abandoned, recycled, or inherently waste-like material, including liquids, solids, semisolids, and contained gases.

GUIDANCE NOTE: Solid waste can be simply Solid or special, hazardous, nonhazardous, radioactive (including transuranic), or mixed waste. Waste consisting solely of source, special nuclear, or by-product material-as defined by the Atomic Energy Act-is exempt from the solid waste regulations as defined by RCRA. Environmental media (for example, soil or water) is not solid waste unless it is destined for disposal. For the more extensive definition under regulation promulgated under the New Mexico Solid Waste Act refer to 20 NMAC 9.1.105BV.

Treatment: When applied to hazardous or hazardous components of mixed waste, any method, technique, or process-including neutralization-designed to change the physical, chemical, or biological character or composition of any waste so as to neutralize such waste or so as to recover energy or material resources from the waste or so as to render such waste nonhazardous or less hazardous and safe to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

Treatment, Storage, and Disposal Facilities. (TSDFs) As defined by RCRA in 40 CFR 264 and 265, a TSDF is a permitted or interim status hazardous waste management unit where hazardous or mixed waste may be stored or treated prior to disposal.

GUIDANCE NOTE: There are no active RCRA hazardous or mixed waste disposal units at the Laboratory. Waste subject to land disposal restrictions (40 CFR 268) will generally be subject to enforcement under the Federal Facilities Compliance Act if stored for more than one year.

Universal waste: Certain of the following types of hazardous waste are subject to the universal waste requirements of 40 CFR Part 273: batteries, pesticides, lamps and mercury thermostats.

GUIDANCE NOTE: The universal waste requirements ease some of the regulatory requirements for collecting and managing these common waste types.

Universal waste handler: A generator of universal waste or the owner or operator of a facility, including all contiguous property, that receives universal waste from other universal waste handlers, that accumulates universal waste and sends universal waste to another universal waste handler or to a destination facility or to a foreign destination.

Waste generator: Any individual and his or her line management (for example, a research scientist or project manager) having direct responsibility for operations that generate waste.

GUIDANCE NOTE: A waste generator may be a member of the organization responsible for the facility or site where the waste was generated. Waste generators have the responsibility for characterization, storage, and disposal of the waste they generate.

Waste management coordinator: (WMC) The individual responsible for coordinating waste management activities on behalf of waste generators, line managers, Facility Managers, Field Project Leaders, the Waste Management groups, and other Laboratory organizations.

GUIDANCE NOTE: This individual also coordinates resolution of waste management issues on behalf of his or her waste-generating organization and reviews documents pertaining to the management of waste.

4.0 Scope and Applicability

This document provides waste generators and TSDF operators with the requirements that must be implemented to characterize and manage waste according to state and federal regulations and Laboratory expectations.

The requirements shall apply to all Laboratory individual waste generators, their Safety and Environment Responsible line-management chain, and all organizations that handle, treat, store, dispose of, or transport Laboratory waste.

All waste generation activities, including environmental restoration waste generation activities, shall implement the requirements contained in this LIR.

The requirements for managing hazardous waste shall apply to consumer products when they are to be discarded, regardless of where they were purchased.

5.0 Precautions and Limitations

The requirements contained in this LIR do not address all conceivable situations. Any suggestions for changes in the requirements or requirements interpretations shall be referred to the Hazardous and Solid Waste Group.

GUIDANCE NOTE: Failure to implement the requirements in this LIR could cause the Laboratory to incur penalties and fines due to findings of noncompliance by the RCRA regulatory authorities.

6.0 Requirements

6.1 Division Directors

In addition to the responsibilities contained in LIR404-00-02, Division Directors, Program Managers, and Program Directors shall:

- Ensure that the federal, state, and Laboratory requirements specified in this document are implemented.
- Ensure that waste generators and TSDF operators recognize and manage hazardous and mixed wastes in accordance with the requirements contained in this LIR.
- Designate an owner for waste when no specific owner can be identified.

6.2 Waste Management Coordinators (WMC)

In addition to the responsibilities in LIR404-00-02, WMCs shall:

- Register waste accumulation/storage areas with the Hazardous and Solid Waste Group.
- Contact the Hazardous and Solid Waste Group regarding any unusual situations or possible variances or exceptions to the requirements contained in this LIR (see LIR301-00-02).

6.3 Hazardous and Solid Waste Group (ESH-19)

In addition to the responsibilities contained in LIR404-00-02, the Hazardous and Solid Waste Group shall maintain registration records for all hazardous and mixed waste accumulation/storage areas at the laboratory.

6.4 Generators

In addition to the responsibilities contained in LIR404-00-02, waste generators shall:

- Implement the requirements contained in NMHWA, New Mexico Administrative Code (NMAC) 20.4.1, 40 CFR Part 262, "Standards Applicable to Generators of Hazardous Waste;" 40 CFR Part 265, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities;" 40 CFR Part 264, "Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities"; and 40 CFR Part 273, "Standards for Universal Waste Management."
- Provide a detailed description of the waste to assist the waste management organizations and the regulatory organizations in determining the classification and management required for the waste.
- Identify RCRA-regulated hazardous waste

GUIDANCE NOTE: Information useful in identifying hazardous and mixed waste can often be obtained from:

- The label on the original container,
- Material safety data sheets (MSDSs),
- Manufacturers' product descriptions,
- Knowledge of the process ("acceptable knowledge" or "AK") that generated the waste,
- Past experience with the waste stream, or
- Analysis of a sample(s) of the waste.

The information in Appendix B can assist waste generators in making a hazardous waste determination.

6.4.1 No-known-owner waste

- The following actions shall be implemented when a no-known-owner waste is identified:

- Contact WMC and safety and environment responsible manager.
- Manage it as a hazardous waste.
- Mark the waste "HAZARDOUS WASTE" and store it in an accumulation area.

- A Request-for-Analysis form shall be submitted to the Hazardous and Solid Waste Group as soon as practicable if waste with no known owner needs to be analyzed. The generator may initiate other sampling and analysis alternatives if and only if these alternate methods satisfy the requirements in SW-846 Test Methods.

6.4.2 Accumulation/storage areas

Generators shall accumulate or store waste in a registered hazardous waste accumulation or storage area.

GUIDANCE NOTE: The Laboratory has four types of accumulation/storage areas:
- Satellite Accumulation Area (SAA)
- Less-than 90 day Accumulation Area (< 90)
- Universal Waste Area (UWA)
- Treatment, Storage, and Disposal Facilities (TSDFs)

6.4.3 General Requirements for Accumulation Areas:

- Containers shall be marked with the words "HAZARDOUS WASTE" or with other words, such as "*acetone*", that specifically identify the contents.

  GUIDANCE NOTE: The contents and the words "HAZARDOUS WASTE" should be marked on the container. The container label should not have chemical formulas or abbreviations.

- If a container holds mixed waste, it shall also be labeled "RADIOACTIVE."
- If mixed waste is stored, it shall be posted in accordance with LPR402-712.
- Containers holding hazardous or mixed waste shall be closed during storage, except when it is required to add or remove waste.
- Containers shall be in good condition and compatible with the waste to be stored.
- If containers are not in good condition or are leaking, the contents shall be transferred to a container in good condition.

- All leaks or spills of hazardous or mixed waste shall be cleaned up immediately.
- All waste containers shall be segregated according to the compatibility of the types of waste held.
- The Inspection Record Forms (IRFs) for less-than 90-day accumulation areas, training records, and hazardous waste determination records shall be retained permanently, in accordance with DOE requirements (see DOE-AL Memorandum LESH:PBS:0031, "Moratorium on the Destruction of Records").
- All accumulation areas shall be identified by a prominently posted sign. The Hazardous and Solid Waste Group or your WMC shall be contacted for signs.
- Chemical waste that is not hazardous or mixed waste shall not be subject to the time or volume restrictions under RCRA.

GUIDANCE NOTE: Chemical waste that is not hazardous or mixed waste does not have to be stored or accumulated in an accumulation/storage area.

GUIDANCE NOTE: Containers holding liquids should have secondary containment.

6.4.4 Requirements for Satellite Accumulation Areas (SAAs)

- SAAs shall be under control of the operator of the process generating the waste.
- SAAs shall be at or near the point of generation and serve a process, a room, or a suite of rooms.

GUIDANCE NOTE: A suite of rooms is a group of rooms that are next to each other or across a hallway from one another.

- An SAA shall not accumulate a total of more then 55 gal. of hazardous or mixed waste or 1 qt of acutely hazardous or mixed waste.
- If the volume limit is exceeded, the generator shall mark the containers holding the excess accumulation of hazardous waste with the date the excess amount began accumulating . The generator shall ensure the waste is transferred to a <90-day accumulation area or a TSDF within three calendar days.
- The SAA shall only serve processes located on the same floor of the building as the SAA.

- An SAA operator shall ensure that physical controls (for example, door or cabinet locks) are in place if the area is located outside a building or in an area without its own physical controls.
- An SAA operator shall ensure that administrative and/or physical controls are in place.
- Administrative controls shall include:
  - Consultation with a WMC
  - Posting of the name and phone number of the SAAs primary contact
  - The establishment of a list of "authorized users"
- All containers shall have the generator name and WPF number or a log sheet (inventory system). While WPF numbers are being acquired, containers shall be marked with "WPF Number Pending."

6.4.5 Requirements for < 90-Day Accumulation Areas

- Within a 90-day period, the generator shall transfer the waste to a TSDF or treat the waste.
- If an extension to the time limit is required for waste in a < 90 day accumulation area, the information shall be submitted to the Hazardous and Solid Waste Group by day 70 of the 90 days.

  GUIDANCE NOTE: An extension can be granted by NMED if the extension is needed due to unforeseen, temporary, and uncontrollable circumstances.
- When an extension is required, the Hazardous and Solid Waste Group shall be provided the following information:
  - Justification of why the extension is required and what has been done to-date to move the waste.
  - A written action plan that ensures the waste will be moved before the 30-day extension ends.
- Containers shall be clearly marked with the words "HAZARDOUS WASTE."
- Containers shall be clearly marked with the accumulation start date and the labels shall be visible for inspection.

- The accumulation start date shall start when the container first receives waste or when the container is first received in the accumulation area.
- Containers with a concentration of volatile organic compounds (VOCs) greater than 500 ppm by weight shall be monitored for emissions unless they meet DOT specifications under 49 CFR Part 178. Other exclusions from the emission monitoring requirement can be found in 40 CFR §265.1080.
- The < 90 day accumulation area shall be equipped with the required eyewash and safety showers, spill control equipment, communications and alarm equipment, and emergency equipment for the types of hazards posed at the site. The equipment must be tested and readiness maintained to ensure it operates as required in time of an emergency. See "Chemical Management", LIR402-510-01, for more specific eyewash and safety shower requirements.
- An Industrial Hygiene/Safety person shall determine if equipment is required and if equipment is not required, this determination shall be documented in a memo to file.
- A copy of the TSDF Contingency Plan shall be maintained at the facility.

  NOTE: The TSDF Contingency Plan applies to both TSDFs and <90-day accumulation areas.
- A copy of the Emergency/Site Specific Plan shall be present at the site.
- All operators shall be familiar with the location and contents of the above-mentioned plans.
- A minimum aisle space of 2 ft shall be maintained between stored waste containers to allow for visual inspection and entry by emergency personnel and equipment.
- Inspections shall:
  - · Be performed weekly.
  - · Be documented in an IRF, a copy of which shall be forwarded to the Hazardous and Solid Waste Group on a weekly basis.
  - · Be performed on the day waste is actively managed (adding, removing, or treating waste).
- Any action required to correct a deficiency documented in an inspection form shall be addressed as soon as practical and the IRF must show progress and/or resolutions.

- Personnel shall not work unsupervised in a <90-day accumulation area until the individual has attended the required training.
- Personnel shall complete the required training courses within six months after the date of employment, new work assignment, or new position handling or generating hazardous or mixed waste.

  GUIDANCE NOTE: Waste Generation Overview training is recommended as a prerequisite for RCRA Personnel Training
- RCRA Personnel Training and annual RCRA Refresher Training shall be required for <90-day accumulation area operators.
- Workers whose training has expired shall not work in < 90 day accumulation areas.

  GUIDANCE NOTE: Hazardous Waste Workers should notify their supervisor formally of expired training.

Treatment by the Waste Generator

Treatment by the waste generator (without a permit) in tanks or containers shall be authorized, provided the following regulatory requirements are met:

- A RCRA Hazardous Waste Treatment Report Form (WTRF) and a waste analysis plan (WAP), if required , shall be completed and submitted to the Hazardous and Solid Waste Group before any hazardous waste is treated.
- A WAP must be completed and implemented when treating to meet Land Disposal Restrictions (LDR) treatment standards found in 40 CFR §268.40.
- The WAP shall contain detailed chemical and physical analysis of a representative sample of the prohibited waste(s) being treated and contain all the information required to treat the waste(s) in accordance with the requirement in 40 CFR §268.7(a)(5), including the selected testing frequency. (See the Hazardous and Solid Waste homepage for the WTRF instructions and a sample WAP by clicking here.)

6.4.6 Requirements for Universal Waste Areas (UWAs)

- All containers holding universal waste shall be marked with the words "UNIVERSAL WASTE" and any additional terms, such as "BATTERIES," "LAMPS," "PESTICIDES," or "MERCURY THERMOSTATS," or shall be marked as required by 40 CFR §273.14.

- All containers holding universal waste in a UWA shall be marked with the accumulation start date or identified as required by 40 CFR §273.35(c).
- Within one year of the accumulation start date, universal waste must be either recycled or transferred to a TSDF.
- The UWA shall be identified by a prominently posted sign. The Hazardous and Solid Waste Group or the responsible WMC shall be contacted for signs.
- All leaks or spills of universal waste shall be cleaned up immediately.

Batteries

- Batteries shall be removed from units or devices prior to placement in accumulation areas.
- The universal waste rule shall apply only to hazardous waste batteries as defined in 40 CFR §260.10 or §273.6 and shall not apply to the unit or device in which the battery is contained.
- Lead-acid batteries that are being recycled shall be managed either by the requirements contained in 40 CFR Part 266, Subpart G, or by the universal waste requirements contained in this section.

GUIDANCE NOTE: The following activities may be conducted by the handler as long as the casing of each individual battery cell is not breached and remains intact and closed (except that cells may be opened to remove electrolyte and closed immediately after removal):

- Battery sorting by type.
- Mixing batteries in one container.
- Discharging batteries to remove the electric charge.
- Regenerating used batteries.
- Disassembling batteries or battery packs to individual batteries or cells.
- Removing the electrolyte from batteries.

- Battery handlers who remove electrolyte or who generate other solid waste as a result, shall determine if the waste is hazardous (see Appendix B). Such handlers shall be considered the generator of the resultant material. If the resultant material is hazardous, it shall be managed in accordance with the requirements contained in 40 CFR §262.34.

Lamps

- Lamps shall be placed in a container or package.
- Containers or packages holding lamps shall be kept closed except when adding or removing waste.

Pesticides

- Pesticide containers shall be kept closed except when adding or removing waste.

Thermostats

- Handlers of universal waste thermostats shall ensure that any release to the environment is prevented.
- Handlers who remove the mercury-containing ampules from thermostats shall ensure:
  - · Ampules are handled in a manner that prevents breakage:
  - · Ampules are removed only over a containment device.
  - · A mercury clean-up system is readily available to immediately transfer any mercury that spills or leaks from broken ampules from the containment device to a container meeting the requirements of 40 CFR §262.34.
- If mercury spills or leaks from broken ampules, the contents shall be transferred from the containment device to a container that meets requirements of 40 CFR §262.34. Additionally, the requirements below shall be met.
  - · The area in which the ampules are removed shall be ventilated and monitored to ensure OSHA exposure levels for mercury are adhered to.
  - · Employees removing the ampules shall be thoroughly familiar with required mercury waste handling and emergency procedures, including transfer of mercury from containment devices to specified containers.
  - · Removed ampules shall be stored in closed, non-leaking containers that are in good condition.
  - · Removed ampules shall be packed in the container as required to prevent breakage during storage, handling, and transportation.
- Mercury handlers who remove mercury or who generate other solid waste as a result, shall determine if the waste is hazardous (see Appendix B). Such handlers shall be considered the generator of the resultant material. If the resultant material is hazardous, it shall be managed in accordance with the requirements contained in 40 CFR §262.34.

7.0 Treatment, Storage and Disposal Facilities

GUIDANCE NOTE: For more specific information about TSDFs contact the Hazardous and Solid Waste Group (ESH-19).

TSDFs shall:

- Implement the requirements contained in NMHWA, the New Mexico Administrative Code (20.4.1 NMAC), 40 CFR 264, "Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities" and 40 CFR 265, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities.
- Notify the LANL Site Treatment Plan Manager before one year has passed since the generation date of mixed low level waste if the waste continues to be in storage.
- Characterize all waste.
- Ensure waste containers are in good condition.
- Identify the TSDF by prominently posting a "Danger—Unauthorized Personnel Keep Out" sign. Signs shall be in English and Spanish and must be legible from 25 feet.
- Establish and follow a written inspection schedule.
- Perform daily or weekly inspections.
- Document inspections in an IRF and forward a copy to the Hazardous and Solid Waste Group (ESH-19) on a weekly basis.
- Ensure any action required in an inspection form to correct a deficiency is addressed as soon as practicable and that the IRF indicates progress and/or resolutions.
- Perform inspections on the day waste is actively managed (adding, removing, or treating waste).
- Ensure that IRFs, training records, shipping manifests and shipping papers, and hazardous waste determination records are permanently maintained in accordance with the DOE requirements documented in DOE-AL Memorandum LESH:PBS:0031, "Moratorium on the Destruction of Records."
- Segregate ignitable and reactive waste and protect the waste from sources of ignition.

- Conspicuously post a "No Smoking" sign when ignitable or reactive waste is being stored.
- Maintain a minimum aisle space of 2 ft between stored waste containers to allow for visual inspection and entry by emergency personnel and equipment.
- Maintain required eyewash and safety showers, spill control equipment, communication and alarm equipment, and emergency equipment as required by Section 6.4.5 of this LIR.
- Maintain a copy of the TSDF Contingency Plan. TSDF workers shall be familiar with the location and contents of this plan.
- Maintain written operating records. (Click here for details and instructions regarding the operating record.)
- Ensure that containers with free liquids have secondary containment of sufficient capacity to contain 10% of the volume of containers or the volume of the largest container, whichever is greater.
- Containers with a concentration of volatile organic compounds (VOCs) greater than 500 ppm by weight shall be monitored for emissions unless they meet DOT specifications under 49 CFR Part 178. Other exclusions from the emission monitoring requirement can be found in 40 CFR §264.1080 and §265.1080.
- Establish and implement a written Waste Analysis Plan.
- Ensure that wastes shipped to an off-site TSDF are manifested in accordance with the requirements contained in 40 CFR §265.71 and §264.71 and the DOT requirements specified in LIR405-10-01.
- Ensure that each copy of the shipping manifest is signed and dated.
- Ensure that discrepancies found upon receipt are noted on the shipping manifest.
- Ensure that only personnel who have the required training or refresher are permitted to work in the TSDF.
- Ensure personnel complete the required training courses within six months after the date of employment, new work assignment, or new position if this involves handling or generating hazardous or mixed waste.
- Ensure TSDF workers complete RCRA Personnel Training and the annual RCRA Refresher Training.

  GUIDANCE NOTE: Waste Generation Overview training is recommended as a prerequisite for RCRA Personnel Training

- Ensure that workers with expired training do not work in TSDF.

GUIDANCE NOTE: Hazardous Waste Workers should formally notify their supervisor of expired training.

- Ensure TSDF workers complete Hazardous waste operations (HAZWOPER) training and refresher.

GUIDANCE NOTE: HAZWOPER Refresher for TSDF Workers (course #9575) fulfills annual refresher requirements for RCRA Refresher (course #9581).

8.0 References

"Chemical Management", Los Alamos National Laboratory Implementation Requirement, LIR402-510-01.

"General Waste Management Requirements," Los Alamos National Laboratory Implementation Requirement, LIR404-00-02.

"Managing Polychlorinated Biphenyls," Los Alamos National Laboratory Implementation Requirement, LIR404-00-06.

"Managing Radioactive Waste," Los Alamos National Laboratory Implementation Requirement, LIR404-00-05.

"Managing Solid Waste," Los Alamos National Laboratory Implementation Requirement, LIR404-00-04.

"Test Methods for Evaluating Solid Wastes," Environmental Protection Agency report SW 846 (November 1986).

"Waste Profile Form Guidance," Los Alamos National Laboratory Implementation Guidance Document, LIG 404-00-03.

Contingency Plan, The Los Alamos National Laboratory Hazardous Waste Permit, issued November 8, 1999 and subsequent revisions.

"Packaging & Transportation," Los Alamos National Laboratory Implementation Requirement LIR405-10-01.

New Mexico Administrative Code, 20.4.1 NMAC.

New Mexico Hazardous Waste Act (NMHWA).

Resource Conservation and Recovery Act, as amended, 42 U.S.C. Sec. 6901 et seq.

Title 40 CFR 261, "Identification and Listing of Hazardous Waste."

Title 40 CFR 262, "Standards Applicable to Generators of Hazardous Waste."

Title 40 CFR 262.34, "Accumulation Time."

Title 40 CFR 264, "Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities."

Title 40 CFR 265, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities."

Title 49 CFR 173,"Shippers—General Requirements for Shipments and Packaging."

9.0 Document Ownership

The Office of Institutional Coordination for this document shall be the Waste Management Policy and Procedure Committee. The WMPCC is responsible for the contents of this document.

10.0 Appendices

Appendix A. Contact List

Appendix B. Supplemental Information/Guidance

Appendix C. Guidance: Recommended Major Implementation Criteria for Self-Assessment

Appendix A

Contact List

Solid Waste Operations (FWO-SWO), 5-6158

Environmental Stewardship Office (ESO), 7-6639

ES&H Training Group (ESH-13), 7-0059

Hazardous and Solid Waste Group (ESH-19), 5-9527

Industrial Hygiene and Safety Group (ESH-5), 7-5231

Johnson Controls Northern New Mexico (JCNNM), Redistribution and Marketing, 7-2109

Packaging and Transportation Section of BUS-4, 7-6122

Appendix B

Supplemental Information/Guidance

Listed Waste Listed hazardous waste consists of chemical compounds identified in 40 CFR Part 261, Subpart D.

(Click here for listed and characteristic waste.)

Characteristic Waste Waste may be hazardous if it exhibits one or more of the following characteristics: ignitability, corrosivity, reactivity, or toxicity.

Ignitability. (40 CFR §261.21) Waste is ignitable if it

- is a liquid or waste containing a free liquid, other than an aqueous solution containing less than 24 percent alcohol by volume, and has a flash point less than 140°F (Pensky-Martens Closed Cup tester);
- is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes **and**, when ignited, burns so vigorously and persistently that it creates a hazard;
- is an ignitable compressed gas; or
- is a DOT oxidizer as defined in 49 CFR §173.151.

Ignitable waste is hazardous and has EPA hazardous waste number **D001.**

Corrosivity. In accordance with the requirements contained in 40 CFR §261.22, any liquid measured for corrosivity must contain water. An aqueous solution with a pH of 2.0 or less, or 12.5 or greater, or a liquid that corrodes steel at a rate greater than 6.35 millimeters per year at a test temperature of 130°F is a hazardous waste. The pH of a solution is the measure of hydrogen and hydroxide ions in water-containing (aqueous – waste containing at least 20% free water by volume) solutions. This waste has a EPA hazardous waste number **D002**.

Reactivity. (40 CFR §261.23) Waste is reactive if it

- is normally unstable and readily undergoes violent change without detonating at standard temperature and pressure;
- violently reacts on contact with water;

- forms potentially explosive mixtures with water;
- when mixed with water, generates toxic gases, vapors or fumes in a quantity that will present a danger to human health or the environment;
- releases cyanide or sulfide when exposed to pH conditions between 2.0 and 12.5 and can generate toxic gas, vapors, or fumes in a quantity that will present a danger to human health or the environment;
- is capable of detonation or explosive reaction if it is subjected to strong initiating source or if heated under confinement;
- is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure; or
- is classified as an explosive or forbidden explosive as defined in 49 CFR Part 173 Subpart C.

Reactive waste is hazardous and has EPA hazardous waste number **D003**.

Toxicity. (40 CFR §261.24) Waste is toxic if it is (or is contaminated with) one of the metals, pesticides, or organic chemicals (hazardous waste numbers **D004** through **D043**), in the stated concentrations (mg/L), as determined by the toxicity characteristic leaching procedure (TCLP). (See the Hazardous and Solid Waste homepage for the listing.) Questions concerning this characteristic should be directed to the WMC or the Hazardous and Solid Waste Group.

Empty Containers

As stated by RCRA, containers shall be considered empty if:

- all wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container (pouring, pumping and aspirating), and
- no more than one inch of residue remains on the bottom of the container, or
- no more than 3 percent by weight of the total capacity of the container or inner liner if the container is less than or equal to 110 gallons in size, remains in the container, or
- no more than 0.3 percent by weight of the total capacity of the container or inner liner—if the container is greater than 110 gal. in size—remains in the container.
- For containers of compressed gases, the pressure in the container approaches atmospheric.
- For acutely hazardous wastes (P-listed), regardless of the volume of the residual product, the container or inner liner has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate. (Note: It is not recommended that this method be used because it increases the amount of waste.)

- Empty containers smaller than 30 gal. may be discarded as commercial solid waste at a municipal landfill as long as the container did not contain a P-listed (acutely hazardous) chemical.
- Empty containers larger than 30 gal. can be recycled through FWO-SWO or JCNNM Redistribution and Marketing Branch. If containers cannot be recycled they should be disposed of through FWO-SWO.

Appendix C

Guidance:
Recommended Major Implementation Criteria for Self-Assessment

LIR Title	LIR Number
Hazardous and Mixed Waste Requirements	LIR404.00.03.1

The major implementation criteria listed below are provided to assist Laboratory organization in assessing their implementation of this LIR. These criteria provide an objective basis for self-assessment implementation of the major requirements contained in the LIR. The LIR also states requirements in other areas, such as, scope, precautions, and responsibilities that, when applied, complement in successful implementation of these major requirements.

1. The most important criterion for assessing the implementation status of this LIR should be, if applicable: Have the requirements contained in the LIR been communicated to the individual(s) responsible for performing the work?
2. In addition, the recommended major implementation criteria for self-assessment of this LIR are the following:
    - Performance of the self-assessment of waste management activities for compliance with the stated requirements of this document.
    - Development of actions plans for identification and implementation of corrective actions where noncompliance is identified.
    - Completion and documentation of the implementation of corrective actions, including training on new or revised activities.

If implemented through the recommended self-assessment, the generating organization should identify any actions required to ensure compliance with this LIR.